

REMARKS/ARGUMENTS

In view of the above amendments and the following remarks, favorable reconsideration of the outstanding office action is respectfully requested.

1. Claims

Claims 1-12 remain in this application. Claims 1 and 7 have been amended. Claims 13 and 14 were previously withdrawn from consideration, without prejudice.

Claims 1 and 7 have been amended for clarity; that is, to clearly state that in the present invention the resonant cavity is in the waveguide itself (not outside it) as applicants have stated in Paragraphs [0009], [0039] and [0040], and particularly in Paragraph [0040] wherein applicants clearly indicate that the resonant cavity is in the silicon core layer of the waveguide. Applicants believe that no new matter has been added by the amendment to claims 1 and 7.

2. Drawings

The Examiner has indicated in the accompanying form PTO-948 that the formal drawings previously submitted have been approved.

3. § 102 Rejections

The Examiner has rejected claims 1, 2, 4 – 8, and 10 – 12, under 35 U.S.C. § 102(e) as being anticipated by Gunn. Applicants traverse the rejection. Specifically, applicants submit that Gunn does not teach the each and every element of the claimed invention situated and operating as described in applicants' specification and claims.

Gunn teaches a resonant cavity that is different from and does not anticipate the present invention. Specifically applicants refer the Examiner to Gunn's Figures 1 and 2. The other cavity representations given in Gunn are similar to those of Figures 1 and 2, and the comments given below are applicable to such figures.

Referring to Gunn's Figure 1 and Column 7, lines 50-64, it is clear that the resonant cavity 106 is separated from waveguides 100 and 102 by gaps A and B respectively. Consequently, Gunn does not teach a structure in which the resonant cavity lies within the waveguide itself. This is further indicated by reference to

Figure 2 (and also 3-4) whose operation is described in column 17, lines 1-7. Gunn states in lines 2-7:

“The operation of the optical cavity 106 shown in Figs 2-4 will now be described. Under certain conditions, when the resonant cavity 106 of Fig.2 is disposed sufficiently close to a waveguide propagating light, such as the first waveguide 100 of Fig. 1, light from the waveguide may couple into the disk-shaped slab 204 of the resonant cavity.”

In these lines Gunn clearly indicates that the resonant cavity is separate from the waveguide and that light must be coupled from the waveguide into the cavity.

In contrast to Gunn, applicants teach a device in which the resonant cavity is located within the waveguide itself. There is no gap A or B separating the resonant cavity from the waveguide. There is no need to couple light from the waveguide to the resonant cavity because the cavity is already in the path of the light that it is to be operated on.

Therefore, in view of the foregoing differences between applicants' claimed invention and Gunn, applicants submit that it is proper for the examiner to withdraw the §102(e) rejection of claims 1, 2, 4 – 8, and 10 – 12.

4. § 103 Rejections

The Examiner has rejected claims 3 and 9 under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Gunn et al in view of Merkis, et al. for reasons set forth in the Office Action. Applicants traverse the rejection.

Merkis does not teach the use of an electric field to change the transmission characteristics of the resonant cavity. Merkis in fact uses a grating. Gunn does not teach or suggest the use of a resonant cavity in the light path in the light of an optical signal. That is, locating the cavity within the waveguide transmitting an optical signal. Instead Gunn teaches locating the resonant cavity outside the waveguide and separated from the waveguide by a gap A or B (because Gunn requires two waveguides). Gunn teaches in column 25, lines 14-26, that the relationship of the first waveguide to the resonant cavity 106 is such that all optical energy from the waveguide is transferred to the resonant cavity 106 when on resonance. Any power that may be fed-back from the resonant cavity to the first waveguide destructively

interferes with the light in the first waveguide such that no energy is outputted from the fist waveguide. All energy output is from the second waveguide.

Consequently, applicants submit that the combination of Gunn and Merkis does not teach or suggest the claimed invention because Gunn teach away from the claimed invention by requiring that the resonant cavity be outside the optical light transmission path. In fact, in Gunn the cavity is imposed between the waveguides and is separated from them by a gap. If one used the cavity of Gunn with a plurality of holes as taught by Merkis, one must locate these holes outside the waveguide.

Nothing in Gunn teaches that it is desirable to locate them within the waveguide.

Further with regard to claims 3 and 9, applicants submit that these claims are patentable for depending on a patentable base claims 1 and 7, respectively.

Therefore, in view of the foregoing facts and arguments, applicants respectively submit that claims 3 and 9 are patentable over the cited art, and that it is proper for the Examiner to withdraw the §103(a) rejection of claims 3 and 9.

5. Conclusion

Based upon the above amendments, remarks, and papers of records, applicants submit that the pending claims 1-12 of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Applicants' undersigned attorney requests that the Examiner call him if there are any matters, including amendment of the claims, whose speedy resolution will facilitate prosecution of the application.

Appl. No.: 10/664,517
Amtd. Dated: November 30, 2005
Reply to Office Action of: September 14, 2005

Please direct any questions or comments to Walter M. Douglas at (607) 974-2431.

30 November 2005
Date

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| CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. § 1.8 | |
| I hereby certify that this paper and any papers referred to herein are being transmitted by the United States Postal Service to the Mail Stop: AF , U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on: | |
| <u>30 November 2005</u> Date | <u>30 November 2005</u> Date |
| Walter M. Douglas | Date |

Respectfully submitted,
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